



Course Addendum: Changes to 2020/21 Teaching In Response to Covid-19

Whilst we hope to deliver as much activity on-campus as possible, the government's guidance and social distancing measures will inform how much teaching we can deliver face-to-face in the 2020/21 academic year. Working to government guidelines we have adapted the delivery of our courses to a model of blending learning, which consists of a mix of online and on-campus activities. We are equipped to move between blended learning to fully online, or face-to-face, as the Covid-19 situation evolves.

The learning outcomes of your course remain the same but there are changes to its delivery, assessment and structure, as set out in the Changes section of this document. The subsequent pages of this document contain the original teaching and learning schedule of this course, for your reference.

24th July 2020

Course Details

| Course Title(s) | All courses in Civil and Building Services Engineering - BEA |
|-----------------|--|
| Course Code | 3994 MSc Structural Engineering (FT) 3995 MSc Structural Engineering (PT) 5287 MSc Civil Engineering (FT) (SEPT) 5288 MSc Civil Engineering (PT) (SEPT) 4341 Institute of Acoustics Diploma (PT) 4342 Institute of Acoustics Certificate of Competence in Environmental Noise Measurements (FT) 5222 MSc Building Services Engineering (FT) (SEPT) 5224 MSc Building Services Engineering (PT) 5226 MSc Environmental and Architectural Acoustics (FT) (SEPT) 5228 MSc Environmental and Architectural Acoustics (PT) (SEPT) 2072 BEng (Hons) Building Services Engineering (FT) 2090 BEng (Hons) Building Services Engineering (PT) 4947 BEng (Hons) Building Services Engineering (Building Services Engineering Site Management Apprenticeship) (PT) 5124 BEng (Hons) Building Services Engineering (TAC Design Apprenticeship) (PT) 5304 BEng (Hons) Building Services Engineering (DIRECT ENTRY) (PT) 5305 BEng (Hons) Building Services Engineering (Top Up) (PT) 5589 BEng (Hons) Building Services Engineering (ExHND) (FT) 191 BEng/BEEng (Hons) Civil Engineering (FT) 5383 BEng (Hons) Civil Engineering (PT) 5123 BEng (Hons) Civil Engineering (TAC Design Apprenticeship) (PT) 2314 HNC Civil Engineering (PT) 4953 HNC Civil Engineering (Construction Site Engineering Technician Apprenticeship) (PT) 549 HND Building Services Engineering (PT) 541 HND Building Services Engineering (FT) 4952 HNC Building Services Engineering (Building Services Engineering Technician Apprenticeship) (PT) 5480 HNC Acoustic Engineering Technician (PT) 5480 HNC Acoustic Engineering Technician (PT) |

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| DESE | Mahmood Dato |
| HoD | Aaron Gillich |
| Shared Modules? | |

Changes to the mode of delivery and course composition

| Module code and name | Changes to delivery mode | Changes to contact hours | | |
|--|--|---|-----------------------|-----------------------|
| | | CURRENT | NEW | |
| Year 1 (Level 4) Full-time groups | <p>All lectures will be delivered online and recorded; a combination of on-line recorded and live timetabled sessions.</p> <p>All tutorials will be live online during timetabled sessions.</p> <p>Labs will be on-campus. For those unable to attend; the labs will be recorded and uploaded online; experimental data will be provided, for analysis and report writing.</p> <p>Any computing work will be via a link connected to the university server; you will need a laptop to access this link.</p> <p>There will be some on-campus timetabled sessions to meet with your lecturers, to offer academic support.</p> <p>All sessions may revert to on-campus if all Government restrictions are lifted during Semester 1.</p> | <p>Contact: (as published in Timetable)</p> <p>Private Study:</p> | <p>26%</p> <p>74%</p> | <p>26%</p> <p>74%</p> |
| Continuing, FT & PT, UGs New and Continuing, FT & PT, PGs | <p>All lectures will be delivered online and recorded; a combination of on-line recorded and live timetabled sessions.</p> <p>All tutorials will be live online during timetabled sessions.</p> <p>Labs will be recorded and uploaded online; experimental data will be provided, for analysis and report writing.</p> <p>Any computing work will be via a link connected to the university</p> | | | |

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| | <p>server; you will need a laptop to access this link.</p> <p>There will be on-campus advanced booking drop-in sessions to meet with your lecturers, to offer academic support.</p> <p>All sessions may revert to on-campus if all Government restrictions are lifted during Semester 1.</p> | | | |
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Changes to assessment strategy

| | <p>All assessments, coursework, labs and exams, will be online Exams will be open book, open from 2pm, and submission by 7pm, on the same day</p> | |
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| Module code and name | Changes to weightings of assessment | |
| | Current | New |
| All modules | No changes required | |

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|--------------------------|-----------------|---|
| Reference points: | Internal | - LSBU Mission Statement and Strategic Plan; - LSBU Core Skills Policy; - LSBU Academic Regulations |
| | External | - Engineering Council, Accreditation of Higher Education Programmes (Third Edition 2014); - Joint Board of Moderators Guidelines for Developing Degree Programmes, January 2018 (Version 1 – Revision 2) |

| | |
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| B Course Aims, Features and Outcomes | |
| Distinctive features of course | <p>This is a broad-based civil engineering course covering the areas of structures, geotechnics, water engineering, transportation and conservation. The technical modules of the course aim to develop the understanding and application of advanced theoretical contents of the specialist subject. Structural topics are taught in the two modules of Finite Elements and Stress Analysis, and Advanced Structural Design. The interaction of geotechnics and structures is covered in the Soil-Structure Engineering module. The Water Engineering module looks into the water engineering aspects. The transportation field is studied in the Highway Engineering and Operations module and the Railway Engineering and Asset Management module.</p> <p>Students will be required to complete an individual project in a specific area of the course studied, providing them with the opportunity of pursuing a course of independent study. The work is to be of an investigative nature having an experimental, analytical, computer-based or fieldwork input.</p> |
| Course Aims | <p>The MSc Civil Engineering course aims to:</p> <ol style="list-style-type: none"> 1. Produce graduates who are committed to a career in civil engineering with a range of employers. 2. Produce graduates equipped to take up professional employment in the construction industry and become lifelong learners with an appreciation of the value to society of an education in civil engineering. 3. Produce graduates who have knowhow and understanding of the key aspects of civil engineering. 4. Allow graduates to acquire and develop problem-solving skills, and subject-specific skills. 5. Develop graduates who bring practical solutions to design problems and who have the technical skills to see their ideas through to realisation. 6. Provide an opportunity to those in full-time employment to study towards a degree in civil engineering on a part-time basis. 7. Create a unique educational environment that seeks to benefit from the practical experience of mature and part-time students. 8. Provide an engineering education centred within the built environment that recognises the important roles of other professions in the development of the built environment and cultivates interaction and teamwork with these other professionals. 9. Provide graduates with the necessary further learning which will provide the full educational base for a Chartered Engineer. |

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| <p>Course Outcomes</p> | <p>The course outcomes have been developed with reference to the JBM guidelines and Engineering Council's Accreditation of Higher Engineering Programmes document, Third Edition (2014). The number and letter in brackets e.g. (SM2m) refer to the Learning Outcomes described in Engineering Council Documentation (Appendix C).</p> <p>The curriculum map showing the modules in which the material that each of the learning outcomes covers is taught, developed and assessed is in Appendix A.</p> <p>a) Students will have knowledge and understanding of:</p> <p>A1: A comprehensive knowledge and understanding of scientific principles and methodology necessary to underpin their education in their engineering discipline, and an understanding and know-how of the scientific principles of related disciplines, to enable appreciation of the scientific and engineering context, and to support their understanding of relevant historical, current and future developments and technologies. (SM1m)</p> <p>A2: Knowledge and understanding of mathematical and statistical methods necessary to underpin their education in their engineering discipline and to enable them to apply a range of mathematical and statistical methods, tools and notations proficiently and critically in the analysis and solution of engineering problems. (SM2m) Ability to apply and integrate knowledge and understanding of other engineering disciplines to support study of their own engineering discipline and the ability to evaluate them critically and to apply them effectively. (SM3m)</p> <p>A3: Understanding the need for a high level of professional and ethical conduct in engineering and knowledge of professional codes of conduct. (EL1m)</p> <p>A4: Knowledge and understanding of the commercial, economic and social context of engineering processes. (EL2)</p> <p>A5: Knowledge of management techniques, including project and change management, that may be used to achieve engineering objectives, their limitations and how they may be applied appropriately. (EL3m)</p> <p>A6: Understanding of the requirement for engineering activities to promote sustainable development and ability to apply quantitative techniques where appropriate (EL4m)</p> <p>A7: Awareness of relevant legal requirements governing engineering activities, including personnel, health & safety, contracts, intellectual property rights, product safety and liability issues, and an awareness that these may differ internationally. (EL5m)</p> <p>A8: Knowledge and understanding of risk issues, including health & safety, environmental and commercial risk, risk assessment and risk management techniques and an ability to evaluate commercial risk. (EL6m)</p> <p>b) Students will develop their intellectual skills such that they are able to:</p> |
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| | <p>B1: Understanding of engineering principles and the ability to apply them to undertake critical analysis of key engineering processes. (EA1m)</p> <p>B2: Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques. (EA2)</p> <p>B3 Ability to apply quantitative and computational methods, using alternative approaches and understand their limitations, in order to solve engineering problems and to implement appropriate action. (EA3m)</p> <p>B4: Understanding of, and the ability to apply, an integrated or systems approach to solving engineering problems. (EA4)</p> <p>B5: Understand and evaluate business, customer and user needs, including considerations such as the wider engineering context, public perception and aesthetics. (D1)</p> <p>B6: Investigate and define the problem, identifying any constraints including environmental and sustainability limitations; ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards. (D2)</p> <p>B7: Work with information that may be incomplete or uncertain, quantify the effect of this on the design and where appropriate, use theory or experimental research to mitigate deficiencies. (D3m)</p> <p>B8: Apply advanced problem-solving skills, technical knowledge and understanding, to establish rigorous and creative solutions that are fit for purpose for all aspects of the problem including production, operation, maintenance and disposal. (D4)</p> <p>B9: Plan and manage the design process, including cost drivers, and evaluate outcomes. (D5)</p> <p>B10: Communicate their work to technical and non-technical audiences. (D6)</p> <p>c) Students will acquire and develop practical skills such that they are able to:</p> <p>C1: Understanding of contexts in which engineering knowledge can be applied (for example operations and management, application and development of technology, etc.). (P1)</p> <p>C2: Knowledge of characteristics of particular equipment, processes or products, with extensive knowledge and understanding of a wide range of engineering materials and components. (P2m)</p> <p>C3: Ability to apply relevant practical and laboratory skills. (P3)</p> <p>C4: Understanding the use of technical literature and other information sources. (P4)</p> <p>C5: Knowledge of relevant legal and contractual issues. (P5); and understanding of appropriate codes of practice and industry standards. (P6)</p> <p>C6: Awareness of quality issues and their application to continuous improvement. (P7); Ability to work with technical uncertainty. (P8)</p> <p>C7: Understanding of different roles within an engineering team and the ability to exercise initiative and personal responsibility, which may be as a team member or leader. (P11m).</p> |
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| | <p>d) Students will acquire and develop transferable skills such that they are able to:</p> <p>D1: Apply their skills in problem-solving, communication, information retrieval, working with others and the effective use of general IT facilities. (G1)</p> <p>D2: Plan self-learning and improve performance, as the foundation for lifelong learning/CPD. (G2)</p> <p>D3: Monitor and adjust a personal programme of work on an on-going basis (G3m)</p> <p>D4: Exercise initiative and personal responsibility, which may be as a team member or leader. (G4)</p> |
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C Teaching and Learning Strategy

A Knowledge and understanding

Through a combination of lectures, seminars, tutorials, practical classes, coursework, design, computer sessions, project work and self-study. Throughout the course students have module guides relevant to each topic of study, giving additional reading material, which students are encouraged to use for private study to consolidate the formal learning process, and both broaden and deepen their knowledge and understanding in the subject area.

B Intellectual skills

Intellectual skills are developed throughout the course of teaching and learning. Analysis and problem-solving skills are further developed through regular tutorial sheets and design-based exercises. Experimental, research and design skills are further developed through coursework exercises, laboratory, research and design projects.

C Practical Skills

Practical skills are developed through the teaching and learning course. Experimental skills are developed through laboratory experiments and project work.

D Transferrable Skills

Transferrable skills are developed through a combination of coursework, presentations, provision of module guides, setting coursework deadlines, laboratory experiments, project work, design work and individual learning.

D Assessments

A Knowledge and understanding

Testing of the knowledge base is through a combination of unseen written examinations, closed book tests, essays, oral presentations, design exercises, laboratory reports, poster displays and individual projects.

B Intellectual skills

Analysis and problem-solving skills are assessed through unseen written examinations and class tests. Experimental, research and design skills are assessed through laboratory reports, coursework exercises, project reports, poster displays and oral presentations.

C Practical Skills

Through a mixture of coursework exercises, laboratory reports, presentations, oral examinations, unseen written examinations, computer-based projects, and individual investigative-based projects.

D Transferrable Skills

Transferrable skills are assessed through a mixture of coursework exercises, laboratory reports, presentations, oral examinations, unseen written examinations, computer-based projects, and individual investigative-based projects.

E Academic Regulations

The University’s Academic Regulations apply for this course. Any course specific protocols will be identified here.

http://www.lsbu.ac.uk/_data/assets/pdf_file/0008/84347/academic-regulations.pdf

The lowest mark in an Assessment that can be compensated is 40%.

F Entry Requirements

In order to be considered for entry to the course applicants will be required to have one of the following qualifications:

- An undergraduate Civil Engineering degree with a minimum of a BEng (Hons) – Lower Second (2.2) classification, or equivalent; or
- An undergraduate Civil Engineering or Architectural Engineering degree with a minimum of a BSc (Hons) – Upper Second (2.1) classification, or equivalent; or
- Applicants with appropriate relevant professional experience deemed to be equivalent to a first degree will also be considered.

For applicants whose first language is not English, an IELTS score of 6.5 or equivalent is required.

G Course Structure

The Course is run on Thursdays and Fridays. Part-time students initially attend one day a week on Thursdays in their first year; in their second year, they attend one day a week on Fridays.

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| | | | | | Weighting | |
|--|--|--|--|--|------------------|--|

| Module Title | Module Code | Semester | Assessment | CW/EX | Mode / Day / Time |
|--|-------------|----------|--------------|-------|---------------------|
| Advanced Structural Design | BEA-7-449 | 1 | CW/EX | 30/70 | FT & PT1, Thurs am |
| Finite Elements and Stress Analysis | BEA-7-494 | 1 | CW/EX | 50/50 | FT & PT1, Thurs pm |
| Water Engineering | BEA-7-495 | 1 | CW/EX | 30/70 | FT & PT2, Friday am |
| Soil-Structure Engineering | BEA-7-499 | 2 | CW/EX | 30/70 | FT & PT1, Thurs am |
| Railway Engineering and Asset Management | BEA-7-481 | 2 | CW/EX | 50/50 | FT & PT1, Thurs pm |
| Highway Engineering and Operations | BEA-7-480 | 2 | CW/EX | 50/50 | FT & PT2, Friday am |
| Project (three modules value) | BEA-7-497 | 1,2 | Dissertation | | FT & PT2, Friday pm |

CW/EX: Coursework / Examination

H Course Modules

| Module Code | Module Title | Semester | Credit value | Assessment CW / EX |
|-------------|--|----------|--------------|-----------------------|
| BEA-7-449 | Advanced Structural Design | 1 | 20 | 30/70 |
| BEA-7-494 | Finite Elements and Stress Analysis | 1 | 20 | 50/50 |
| BEA-7-495 | Water Engineering | 1 | 20 | 30/70 |
| BEA-7-499 | Soil-Structure Engineering | 2 | 20 | 30/70 |
| BEA-7-481 | Railway Engineering and Asset Management | 2 | 20 | 50/50 |
| BEA-7-480 | Highway Engineering and Operations | 2 | 20 | 50/50 |
| BEA-7-497 | Project (three modules value) | 1-2 | 60 | 100 dissertation |

J Costs and financial Support

Information on tuition fees/financial support can be found by clicking on the following link –

<http://www.lsbu.ac.uk/courses/undergraduate/fees-and-funding> or
<http://www.lsbu.ac.uk/courses/postgraduate/fees-and-funding>

Information on living costs and accommodation can be found by clicking the following link-

<https://my.lsbu.ac.uk/my/portal/Student-Life-Centre/International-Students/Starting-at-LSBU/#expenses>

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- Appendix A: Curriculum Map
- Appendix B: Personal Development Planning
- Appendix C: Learning outcomes (Correlation between JBM codes and LSBU codes)
- Appendix D: Educational Framework
- Appendix E: Terminology

Appendix A: Curriculum Map

| Module | | Engineering Council Learning Outcomes / Course Outcomes | | | | | | | | | | |
|--|-----------|---|------|------|-----|-----|-----|-----|-----|----|-----|--|
| | | SM1m | SM2m | EL1m | EL2 | EL3 | EL4 | EL5 | EL6 | | | |
| Title | Code | A1 | A2 | A3 | A4 | A5 | A6 | A7 | A8 | | | |
| Advanced Structural Design | BEA-7-449 | TDA | DA | | D | | D | | | | | |
| Finite Elements and Stress Analysis | BEA-7-494 | TDA | TDA | | | | | | | | | |
| Water Engineering | BEA-7-495 | TDA | TDA | | D | | TD | D | | | | |
| Soil-Structure Engineering | BEA-7-499 | | TDA | | | | D | | | | | |
| Railway Engineering and Asset Management | BEA-7-481 | TDA | | TD | DA | D | D | D | | | | |
| Highway Engineering and Operations | BEA-7-480 | | DA | D | D | DA | DA | TDA | DA | | | |
| Project (three modules value) | BEA-7-497 | D | D | | | | | | | | | |
| | | | | | | | | | | | | |
| | | EA1 | EA2 | EA3 | EA4 | D1 | D2 | D3 | D4 | D5 | D6 | |
| Title | Code | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | |
| Advanced Structural Design | BEA-7-449 | TDA | DA | DA | D | D | | DA | TDA | D | DA | |
| Finite Elements and Stress Analysis | BEA-7-494 | TDA | TDA | TDA | D | | | D | DA | | D | |
| Water Engineering | BEA-7-495 | TDA | TDA | TDA | D | | | | TDA | | D | |
| Soil-Structure Engineering | BEA-7-499 | TDA | DA | DA | | | | DA | TDA | | D | |
| Railway Engineering and Asset Management | BEA-7-481 | | | | D | DA | DA | D | DA | D | | |
| Highway Engineering and Operations | BEA-7-480 | TDA | DA | TDA | | TD | T | | DA | | D | |
| Project (three modules value) | BEA-7-497 | D | | D | | | D | D | DA | | DA | |

| | | P1 | P2 | P3 | P4 | P5 | P6 | P7+P 11m | G1 | G2 | G3 | G4 |
|--|-----------|-----|----|----|-----|-----|-----|-------------|-----|----|----|----|
| Title | Code | C1 | C2 | C3 | C4 | C5 | C6 | C7 | D1 | D2 | D3 | D4 |
| Advanced Structural Design | BEA-7-449 | D | TD | | D | | TDA | DA | DA | | | D |
| Finite Elements and Stress Analysis | BEA-7-494 | | | DA | | | | | TDA | | | |
| Water Engineering | BEA-7-495 | D | D | TD | D | D | TDA | | TDA | | | D |
| Soil-Structure Engineering | BEA-7-499 | DA | | D | DA | | DA | D | TDA | | | D |
| Railway Engineering and Asset Management | BEA-7-481 | TDA | TD | | | TDA | TDA | | D | | | |
| Highway Engineering and Operations | BEA-7-480 | TDA | D | D | | DA | D | D | TDA | | | |
| Project (three modules value) | BEA-7-497 | DA | D | DA | TDA | DA | | | DA | DA | DA | DA |

T: taught, D: developed and A: assessed

Appendix B: Personal Development Planning

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| 1 | Supporting the development and recognition of skills through the personal tutor system. | <p>The Course Director is the personal tutor of all the students (full-time and part-time). This is brought to the attention of all students at induction and regularly during the year.</p> <p>Each student will be offered a 15 minutes interview with the Personal Tutor, once in each of the two semesters; items discussed will be noted in the students' PDP diary.</p> |
| 2 | Supporting the development and recognition of skills in academic modules. | <p>All modules are structured so that the combination of courseworks introduce and develop the technical skills at the post-graduate level in the fields of experimentation, hands-on computer modelling, design exercises, critical analysis, analysis methodologies, data interpretation and verification, research methodologies.</p> <p>Assessed coursework, in stages, provide the feedback for the consolidation and improvement of these academic skills.</p> |
| 3 | Supporting the development and recognition of skills through purpose designed modules. | The modules have been designed to support the development of skills in civil and structural engineering. |
| 4 | Supporting the development and recognition of skills through research projects and dissertation works. | Students will develop research skills in a variety of the modules, but in particular in the project module. |
| 5 | Supporting the development and recognition of career management skills. | <p>An academic staff, who is the Liaison Officer for the Institution of Civil Engineers briefs the students on the benefits of the student membership of the institution.</p> <p>The London Branch of the Institution of Civil Engineers visits the students on site and briefs them about the activities and the benefits of the membership of the local activities, and routes to Chartership.</p> <p>Similar links through academic staff will be formed with other relevant professional bodies including the Chartered Institute of Highways and Transportation, the Institution of Highway Engineers, and the Institution of Structural Engineers. Students are encouraged to use the LSBU Careers Office for CV preparation, interview skills, job vacancies.</p> |
| 6 | Supporting the development and recognition of skills through work placements or work experience. | Not applicable. |
| 7 | Supporting the development of skills by recognising that they can be developed through extracurricular activities. | Field trips and site visits are organised by members of the teaching team throughout the academic year. |
| 8 | Supporting the development of the skills and attitudes as a basis for continuing professional development. | Notices of lectures and presentations at the Institution of Civil Engineers, the Institution of Structural Engineers, the Chartered Institute of Highways and Transportation and the Institution of Highway Engineers are brought to the students' attention. |
| 9 | Other approaches to personal development planning. | Not applicable. |
| 10 | The means by which self-reflection, evaluation and planned development are supported, e.g. electronic or paper-based learning log or diary. | <p>Weekly meetings for the Project between the student and the supervisor.</p> <p>Written and/or verbal feedback on assessed coursework.</p> |

Appendix C: Learning Outcomes

Correlation between JBM and LSBU codes on Learning Outcomes

| JBM Guidelines January 2018 | | | Course Outcomes LSBU | |
|--------------------------------------|------|---|----------------------|------------------------------------|
| Science and Mathematics (SM) | SM1m | Knowledge and understanding of scientific principles and methodology necessary to underpin their education in their engineering discipline, to enable appreciation of its scientific and engineering context, and to support their understanding of relevant historical, current and future developments and technologies | A1 | Knowledge and Understanding |
| | SM2m | Knowledge and understanding of mathematical and statistical methods necessary to underpin their education in their engineering discipline and to enable them to apply mathematical and statistical methods, tools and notations proficiently in the analysis and solution of engineering problems | A2 | |
| | SM6m | Ability to apply and integrate knowledge and understanding of other engineering disciplines to support the study of their own engineering discipline | | |
| Engineering and Analysis (EA) | EA1m | Understanding of engineering principles and the ability to apply them to undertake critical analysis of key engineering processes. | B1 | Intellectual Skills |
| | EA2 | Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques | B2 | |
| | EA3m | Ability to apply quantitative and computational methods, using alternative approaches and understanding their limitations, in order to solve engineering problems and to implement appropriate action. | B3 | |
| | EA4 | Understanding of, and the ability to apply, an integrated or systems approach to solving engineering problems | B4 | |
| Design (D) | D1 | Understand and evaluate the business, customer and user needs, including considerations such as the wider engineering context, public perception and aesthetics | B5 | |
| | D2 | Investigate and define the problem, identifying any constraints including environmental and sustainability limitations; ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards | B6 | |
| | D3m | Work with information that may be incomplete or uncertain and quantify the effect of this on the design | B7 | |
| | D4 | Apply advanced problem-solving skills, technical knowledge and understanding, to establish rigorous and creative solutions that are fit for purpose for all aspects of the problem including production, operation, maintenance and disposal | B8 | |
| | D5 | Plan and manage the design process, including cost drivers, and evaluate outcomes | B9 | |
| | D6 | Communicate their work to technical and non-technical audiences | B10 | |

| JBM Guidelines January 2018 | | Course Outcomes LSBU | | |
|--|------|---|----|------------------------------------|
| Economic, legal, social, ethical and environmental context (EL) | EL1m | Understanding the need for a high level of professional and ethical conduct in engineering and a knowledge of professional codes of conduct and how ethical dilemmas can arise. | A3 | Knowledge and Understanding |
| | EL2 | Knowledge and understanding of the commercial, economic and social context of engineering processes | A4 | |
| | EL3m | Knowledge and understanding of management techniques, including project management, that may be used to achieve engineering objectives, their limitations, and how they can arise. | A5 | |
| | EL4 | Understanding of the requirement for engineering activities to promote sustainable development and ability to apply quantitative techniques where appropriate | A6 | |
| | EL5m | Awareness of relevant legal requirements governing engineering activities, including personnel, health & safety, contracts, intellectual property rights, product safety and liability issues | A7 | |
| | EL6m | Knowledge and understanding of risk issues, including health & safety, environmental and commercial risk, and risk assessment and risk management techniques and an | A8 | |
| Engineering practice (P) | P1 | Understanding of contexts in which engineering knowledge can be applied (for example operations and management, application and development of technology, etc.) | C1 | Practical Skills |
| | P2m | Knowledge of characteristics of particular equipment, processes or products, with extensive knowledge and understanding of a wide range of engineering materials and components. | C2 | |
| | P3 | Ability to apply relevant practical and laboratory skills | C3 | |
| | P4 | Understanding the use of technical literature and other information sources | C4 | |
| | P5 | Knowledge of relevant legal and contractual issues | C5 | |
| | P6 | Understanding of appropriate codes of practice and industry standards | C5 | |
| | P7 | Awareness of quality issues and their application to continuous improvement | C6 | |
| | P8 | Ability to work with technical uncertainty | C7 | |
| Additional general skills (G) | P11m | Understanding of different roles within an engineering team and the ability to exercise initiative and personal responsibility, which may be as a team member or leader. | C7 | Transferable Skills |
| | G1 | Apply their skills in problem-solving, communication, information retrieval, working with others and the effective use of general IT facilities | D1 | |
| | G2 | Plan self-learning and improve performance, as the foundation for lifelong learning/CPD | D2 | |
| | G3m | Monitor and adjust a personal programme of work on a on-going basis | D3 | |
| | G4 | Exercise initiative and personal responsibility, which may be as a team member or leader | D4 | |

Appendix D: Educational Framework

This appendix to the course specification document enables course teams to evidence how their courses meet minimum expectations, at what level where appropriate, as the basis for embedding the Educational Framework in all undergraduate provision at LSBU.

| Dimension of the Educational Framework | Minimum expectations and rationale | How this is achieved in the course |
|--|--|---|
| Curricula informed by employer and industry need | <p><u>Outcomes focus and professional/employer links</u></p> <p>All LSBU courses will evidence the involvement of external stakeholders in the curriculum design process as well as plan for the participation of employers and/or alumni through guest lectures or Q&A sessions, employer panels, employer-generated case studies or other input of expertise into the delivery of the course provide students with access to current workplace examples and role models.</p> | The curriculum design is informed by the JBM and the Industrial Advisory Panel at LSBU. Teaching staff on the course are LSBU staff. |
| Embedded learning development | <p><u>Support for transition and academic preparedness</u></p> <p>There should be some embedded learning development in the curriculum to support student understanding of, and familiarity with, disciplinary ways of thinking and practising (e.g. analytical thinking, academic writing, critical reading, reflection). Where possible, learning development will be normally integrated into content modules rather than as standalone modules.</p> | Most taught modules involve analysis of a civil / structural engineering system, a coursework encouraging independent analysis of such a system and finally delivery of a report as part of the coursework. |
| High impact pedagogies | <p><u>Group-based learning experiences</u></p> <p>The capacity to work effectively in teams enhances learning through working with peers and develops student outcomes, including communication, networking and respect for diversity of perspectives relevant to professionalism and inclusivity. Consideration should be given to how students are allocated to groups to foster experience of diverse perspectives and values.</p> | Group work is introduced in tutorial sessions and in some coursework activities. |
| Inclusive teaching, learning and assessment | <p><u>Accessible materials, resources and activities</u></p> <p>All course materials and resources, including course guides, PowerPoint presentations, handouts and Moodle should be provided in an accessible format. For example, font type and size, layout and colour as well as captioning or transcripts for audio-visual materials. Consideration should</p> | Students work in diverse groups in labs and project and field trips. Inclusion is guaranteed with the mix of different cohorts during the lectures |

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| | also be given to accessibility and the availability of alternative formats for reading lists. | |
| Assessment for learning | <u>Assessment and feedback to support attainment, progression and retention</u> Assessment is recognised as a critical point for at risk students as well as integral to the learning of all students. Formative feedback is very helpful upon commencing study at the University. Assessment and feedback communicates high expectations and develops a commitment to excellence . | Tutorial sessions are used to aid student learning and some modules feature formative assessments. |
| High impact pedagogies | <u>Research and enquiry experiences</u> Opportunities for students to undertake small-scale independent enquiry enable students to understand how knowledge is generated and tested in the discipline as well as prepare them to engage in enquiry as a highly sought after outcome of university study. Research opportunities should build student autonomy and are likely to encourage creativity and problem-solving. Dissemination of student research outcomes, for example via posters, presentations and reports with peer review, should also be considered. | The learners undertake their individual research project at the end of the degree; they are prepared for this via weekly research seminars. |
| Curricula informed by employer and industry need / Assessment for learning | <u>Authentic learning and assessment tasks</u> Live briefs, projects or equivalent authentic workplace learning experiences and/or assessments enable students, for example, to engage with external clients, develop their understanding through situated and experiential learning in real or simulated workplace contexts and deliver outputs to an agreed specification and deadline. Engagement with live briefs creates the opportunity for the development of student outcomes including excellence, professionalism, integrity and creativity . A live brief is likely to develop research and enquiry skills and can be linked to assessment if appropriate. | Many coursework briefs are based on real-life design scenarios or engineering situations. A number of students choose to study research topics suggested by their employers or in conjunction with external industrial partners. |
| Inclusive teaching, learning and assessment | <u>Course content and teaching methods acknowledge the diversity of the student cohort</u> An inclusive curriculum incorporates images, examples, case studies and other resources from a broad range of cultural and social views reflecting diversity of the student cohort in terms of, for example, gender, ethnicity, sexuality, religious belief, socio-economic background etc. This commitment to inclusivity enables students to recognise | This diversity is guaranteed with a successful mix of full-time and part-time students where the lecturers encourage the learners to share their knowledge. |

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| | <p>themselves and their experiences in the curriculum as well as foster understanding of other viewpoints and identities.</p> | |
| <p>Curricula informed by employer and industry need</p> | <p><u>Work-based learning</u> Opportunities for learning that is relevant to future employment or undertaken in a workplace setting are fundamental to developing student applied knowledge as well as developing work-relevant student outcomes such as networking, professionalism and integrity. Work-based learning can take the form of work experience, internships or placements as well as, for example, case studies, simulations and role-play in industry-standards settings as relevant to the course. Work-based learning can be linked to assessment if appropriate.</p> | <p>As noted above some students on the course are part-time and working in the construction industry where they will have many opportunities to network and undertake work based learning. Field trips and site visits are available for all students.</p> |
| <p>Embedded learning development</p> | <p><u>Writing in the disciplines: Alternative formats</u> The development of student awareness, understanding and mastery of the specific thinking and communication practices in the discipline is fundamental to applied subject knowledge. This involves explicitly defining the features of disciplinary thinking and practices, finding opportunities to scaffold student attempts to adopt these ways of thinking and practising and providing opportunities to receive formative feedback on this. A writing in the disciplines approach recognises that writing is not a discrete representation of knowledge but integral to the process of knowing and understanding in the discipline. It is expected that assessment utilises formats that are recognisable and applicable to those working in the profession. For example, project report, presentation, poster, lab or field report, journal or professional article, position paper, case report, handbook, exhibition guide.</p> | <p>Student writing skills are taught and assessed in all modules. These skills are needed to produce the lab reports, field trip reports and group project report that form part of the modules assessments.</p> |
| <p>High impact pedagogies</p> | <p><u>Multi-disciplinary, interdisciplinary or interprofessional group-based learning experiences</u> Students should be provided with the opportunity to work and manage more complex tasks in groups that work across traditional disciplinary and professional boundaries and reflecting interprofessional work-place settings. Learning in multi- or interdisciplinary groups creates the opportunity for the development of student</p> | <p>Group project work, a diverse range of engineering topics and a dedicated individual research project aids multidisciplinary learning.</p> |

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| | outcomes including inclusivity , communication and networking. | |
| Assessment for learning | <p><u>Variation of assessment</u></p> <p>An inclusive approach to curriculum recognises diversity and seeks to create a learning environment that enables equal opportunities for learning for all students and does not give those with a particular prior qualification an advantage or disadvantage. A holistic assessment strategy should provide opportunities for all students to be able to demonstrate achievement of learning outcomes in different ways throughout the course. This may be by offering alternate assessment tasks at the same assessment point, for example either a written or oral assessment, or by offering a range of different assessment tasks across the curriculum.</p> | <p>There are a range of assessments on the course including as follows:</p> <p>Examinations and in class tests.</p> <p>Laboratory Reports.</p> <p>Presentations.</p> <p>Group tutorials.</p> <p>Computer-based design work.</p> |
| Curricula informed by employer and industry need | <p><u>Career management skills</u></p> <p>Courses should provide support for the development of career management skills that enable student to be familiar with and understand relevant industries or professions, be able to build on work-related learning opportunities, understand the role of self-appraisal and planning for lifelong learning in career development, develop resilience and manage the career building process. This should be designed to inform the development of excellence and professionalism.</p> | <p>As noted above the course is informed by the JBM and the Industrial Advisory Panel at LSBU.</p> |
| Curricula informed by employer and industry need / Assessment for learning / High impact pedagogies | <p><u>Capstone project/dissertation</u></p> <p>The research dissertation is a critical point for the integration and synthesis of knowledge and skills from across the course. It also provides an important transition into employment if the assessment is authentic, industry-facing or client-driven. It is recommended that this is a capstone experience, bringing together all learning across the course and creates the opportunity for the development of student outcomes including professionalism, integrity and creativity.</p> | <p>As per the Research Project module.</p> |

Appendix E: Terminology

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| awarding body | a UK higher education provider (typically a university) with the power to award higher education qualifications such as degrees |
| bursary | a financial award made to students to support their studies; sometimes used interchangeably with 'scholarship' |
| collaborative provision | a formal arrangement between a degree-awarding body and a partner organisation, allowing for the latter to provide higher education on behalf of the former |
| compulsory module | a module that students are required to take |
| contact hours | the time allocated to direct contact between a student and a member of staff through, for example, timetabled lectures, seminars and tutorials |
| coursework | student work that contributes towards the final result but is not assessed by written examination |
| current students | students enrolled on a course who have not yet completed their studies or been awarded their qualification |
| delivery organisation | an organisation that delivers learning opportunities on behalf of a degree-awarding body |
| distance-learning course | a course of study that does not involve face-to-face contact between students and tutors |
| extracurricular | activities undertaken by students outside their studies |
| feedback (on assessment) | advice to students following their completion of a piece of assessed or examined work |
| formative assessment | a type of assessment designed to help students learn more effectively, to progress in their studies and to prepare for summative assessment; formative assessment does not contribute to the final mark, grade or class of degree awarded to students |

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| higher education provider | organisations that deliver higher education |
| independent learning | learning that occurs outside the classroom that might include preparation for scheduled sessions, follow-up work, wider reading or practice, completion of assessment tasks, assignments |
| intensity of study | the time taken to complete a part-time course compared to the equivalent full-time version: for example, half-time study would equate to |
| lecture | a presentation or talk on a particular topic; in general lectures involve larger groups of students than seminars and tutorials |
| learning zone | a flexible student space that supports independent and social learning |
| material information | information students need to make an informed decision, such as about what and where to study |
| mode of study | different ways of studying, such as full-time, part-time, e-learning or work-based learning |
| modular course | a course delivered using modules |
| module | a self-contained, formally structured unit of study, with a coherent and explicit set of learning outcomes and assessment criteria; some providers use the word 'course' or 'programme' with reference to individual modules |
| national teaching fellowship | a national award for individuals who have made an outstanding impact on student learning and the teaching profession |
| navigability (of websites) | the ease with which users can obtain the information they require from a website |
| optional module | a module or course unit that students choose to take |
| performance (examinations) | a type of examination used in performance-based subjects such as drama and music |
| professional body | an organisation that oversees the activities of a particular profession and represents the interests of its members |
| prospective student | those applying or considering applying for any programme, at any level and employing any mode of study, with a higher education provider |

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| regulated course | a course that is regulated by a regulatory body |
| regulatory body | an organisation recognised by government as being responsible for the regulation or approval of a particular range of issues and activities |
| scholarship | a type of bursary that recognises academic achievement and potential, and which is sometimes used interchangeably with 'bursary' |
| semester | either of the parts of an academic year that is divided into two for purposes of teaching and assessment (in contrast to division into terms) |
| seminar | seminars generally involve smaller numbers than lectures and enable students to engage in discussion of a particular topic and/or to explore it in more detail than might be covered in a lecture |
| summative assessment | formal assessment of students' work, contributing to the final result |
| term | any of the parts of an academic year that is divided into three or more for purposes of teaching and assessment (in contrast to division into semesters) |
| total study time | the total time required to study a module, unit or course, including all class contact, independent learning, revision and assessment |
| tutorial | one-to-one or small group supervision, feedback or detailed discussion on a particular topic or project |
| work/study placement | a planned period of experience outside the institution (for example, in a workplace or at another higher education institution) to help students develop particular skills, knowledge or understanding as part of their course |
| workload | see 'total study time' |
| written examination | a question or set of questions relating to a particular area of study to which candidates write answers usually (but not always) under timed conditions |